

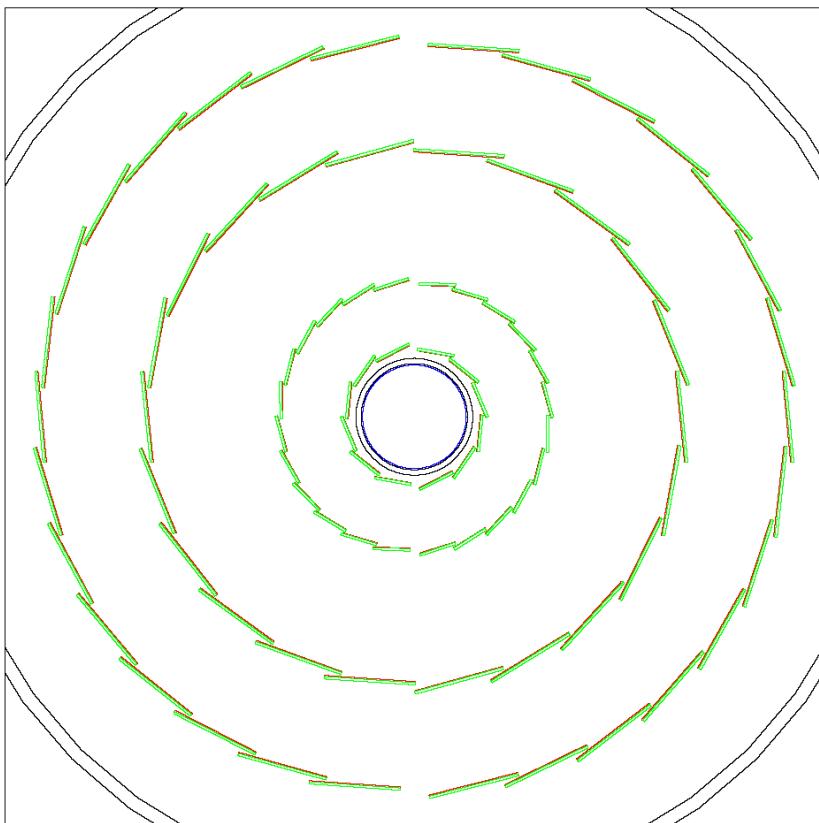
# *Radiation Length Distribution for VTX*

*Jul 25, 2008  
Maki Kurosawa  
RIKEN*

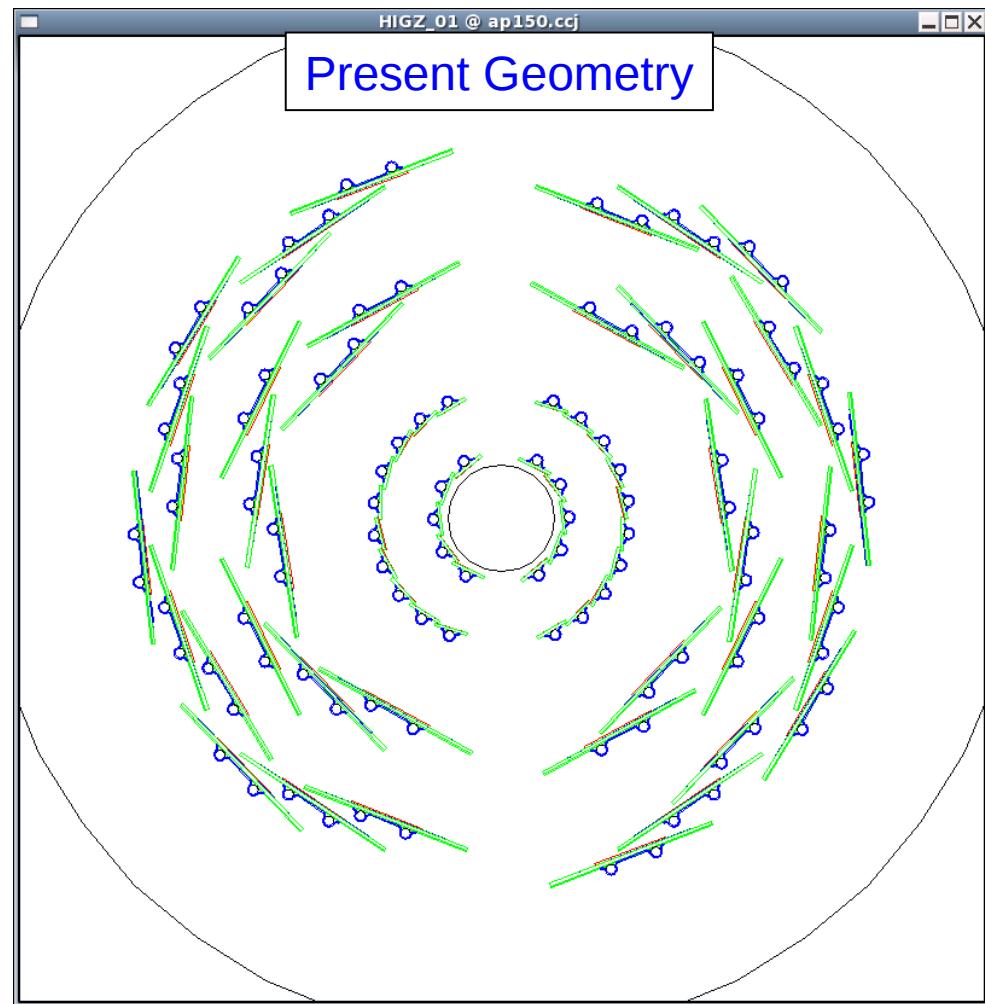
# Geometry Modification

Radiation length for present geometry ?

Previous Geometry



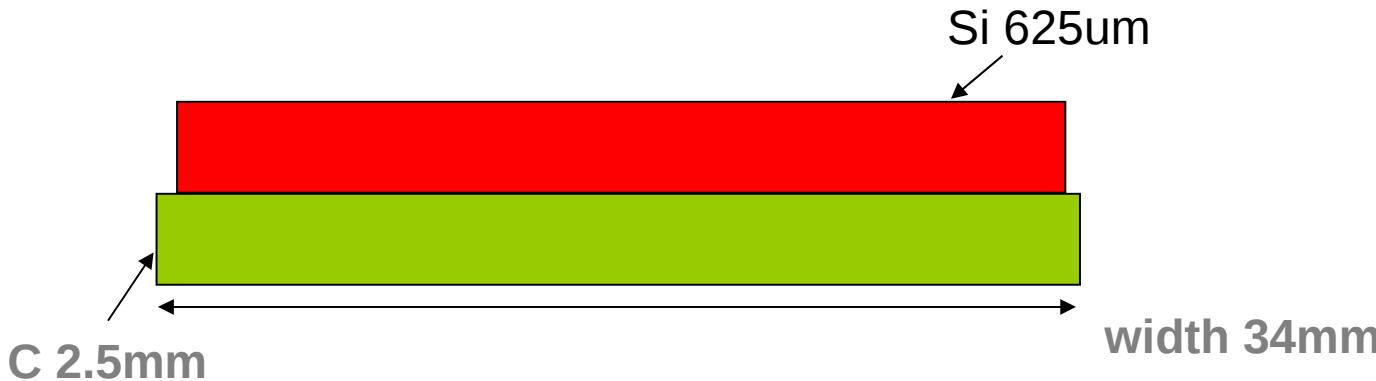
Present Geometry



80mm width strip ladder  
Cooling tube  
Implement of a realistic ROC3 medium

# Modified Medium for Strip Layer

Before



After

Cu 17um (DGND)



G10 1.2mm (Insulator)

C 500um (stave)

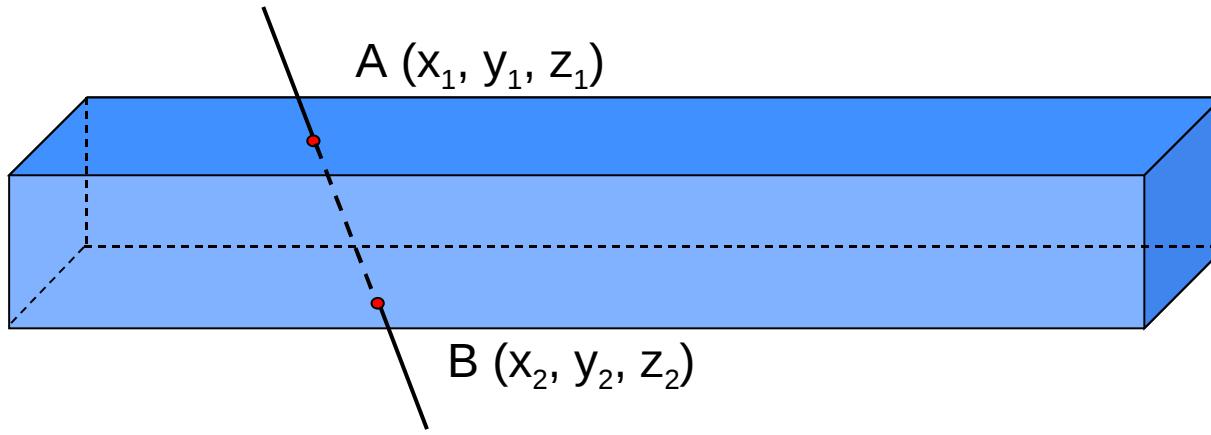
Material	Radiation Length (%)
Si (radl:9.36)	0.67 (625um)
Cu (radl:1.43)	0.48 (68um)
G10 (radl:19.4)	0.62 (1.2mm)
C (radl:18.8)	0.27 (500um)
<b>Sum</b>	<b>2.04</b>

$$\text{total} = 2.04 + 1.25 \times 1.3 \\ \sim \underline{\underline{3.7\%}}$$

## Radiation Length of Each Layer

Use of a pass length through medium to calculate a radiation length.

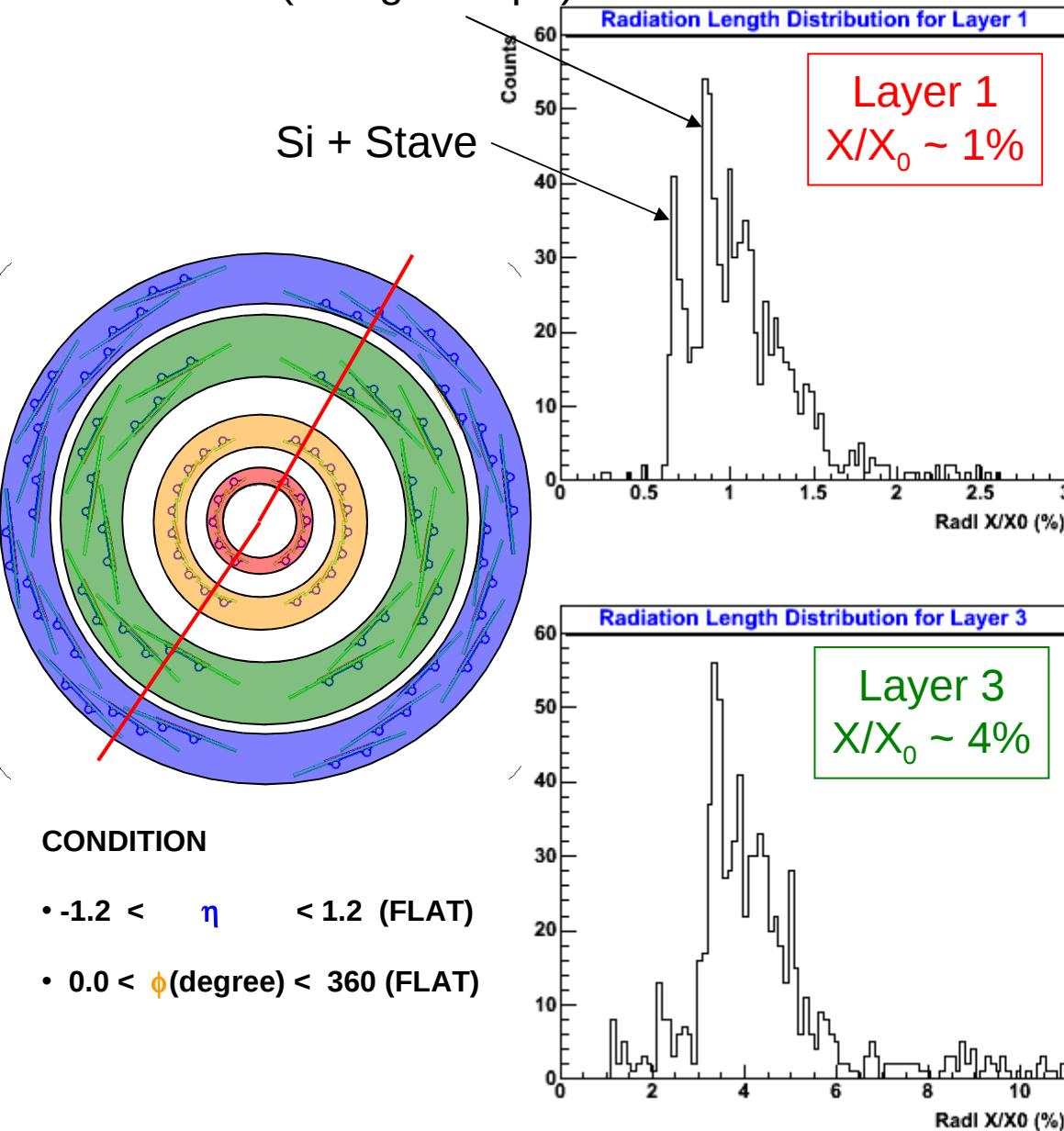
Not use LSCAN or HSCAN



$$\text{Radiation Length (\%)} : \frac{X}{X_0} = \frac{\overline{AB}}{X_0}$$

# Radiation Length Distribution

Si + Stave (omega shape)

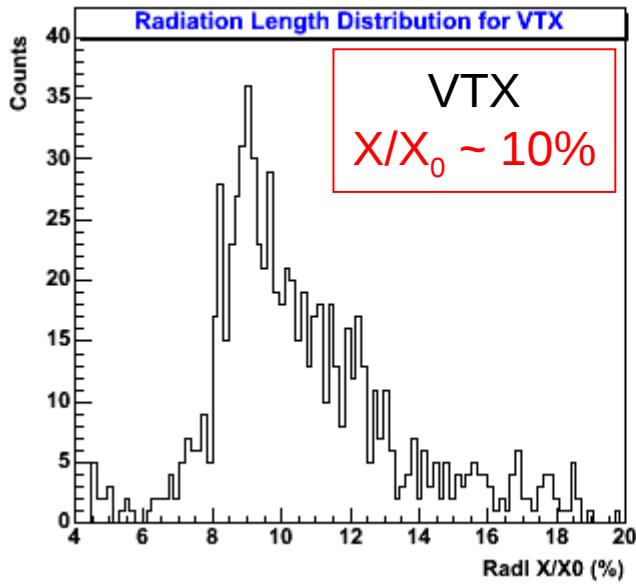


## CONDITION

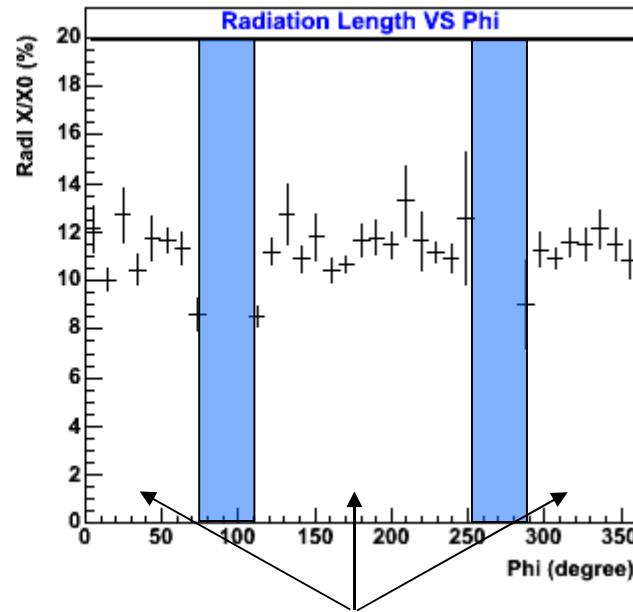
- $-1.2 < \eta < 1.2$  (FLAT)
- $0.0 < \phi(\text{degree}) < 360$  (FLAT)

# Radiation Length Distribution

Radiation Length for VTX



Radiation Length v.s.  $\phi$



SVX Acceptance

Radiation length of VTX was estimated to be 10%.

# Summary

Previous Geometry

SVX Layer	Radiation Length (%)
1	1 (%)
2	1 (%)
3	2 (%)
4	2 (%)
Sum	6 (%)

values from proposal  
for silicon vertex tracker



Present Geometry

SVX Layer	Radiation Length (%)
1	1 (%)
2	1 (%)
3	4 (%)
4	4 (%)
Sum	10 (%)

# Backup

